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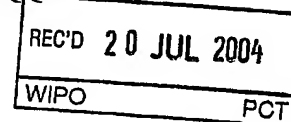


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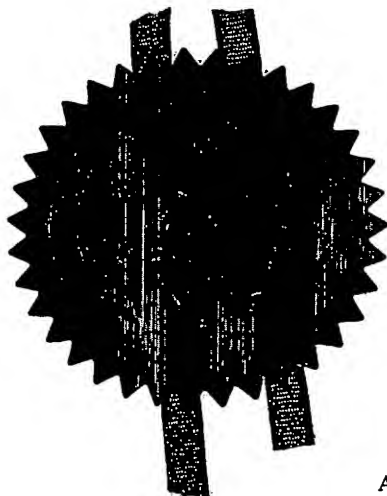


I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

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In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

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Signed

Dated 23 June 2004

An Executive Agency of the Department of Trade and Industry

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THE PATENT OFFICE

B

24 MAY 2003

NEWPORT

TRADING ESTABLISHMENT-1 000005  
PA 17/03 2.00-0312023.5

Your reference

0312023.5

24 MAY 2003

#### Notes

Please type, or write in dark ink using CAPITAL letters. A prescribed fee is payable for a request for grant of a patent. For details, please contact the Patent Office (telephone 071-438 4700).

Rule 16 of the Patents Rules 1990 is the main rule governing the completion and filing of this form.

② Do not give trading styles, for example, 'Trading as XYZ company', nationality or former names, for example, 'formerly (known as) ABC Ltd' as these are not required.

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The  
Patent  
Office

## Request for grant of a Patent Form 1/77

Patents Act 1977

### ① Title of invention

- 1 Please give the title of the invention **CONTAINER HINGE WITH CUSTOMS SEAL PROVISION.**

### ② Applicant's details

#### ☐ First or only applicant

- 2a If you are applying as a corporate body please give:

Corporate name

Country (and State  
of incorporation, if  
appropriate)

- 2b If you are applying as an individual or one of a partnership please give in full:

Surname **REYNARD**

Forenames **KENNETH**

- 2c In all cases, please give the following details:

Address **DURALOC LIMITED  
UNIT 7 CARLTON MINIOTT BUSINESS PARK  
THIRSK  
N. YORKSHIRE**

UK postcode  
(if applicable) **YO7 4NF.**

Country **ENGLAND.**

ADP number  
(if known) **8222226001**

2d, 2e and 2f: If there are further applicants please provide details on a separate sheet of paper.

☐ **Second applicant (if any).**

2d If you are applying as a corporate body please give:  
Corporate name

Country (and State  
of incorporation, if  
appropriate)

2e If you are applying as an individual or one of a partnership please give in full:

Surname

Forenames

2f In all cases, please give the following details:

Address

UK postcode  
(if applicable)

Country

ADP number  
(if known)

Ⓢ An address for service in the  
United Kingdom must be supplied

Please mark correct box

Ⓢ **Address for service details**

3a Have you appointed an agent to deal with your application?

Yes ☒ No ☐ → go to 3b

↓  
please give details below

Agent's name

WILLIAM ORR.  
URQUHART DYKES & LORD.

Agent's address 8TH FLOOR, TOWER HOUSE  
MERRION WAY

LEEDS

W. YORKSHIRE

LS2 8 PA.

Postcode

Agent's ADP  
number

164400P

3b: If you have appointed an agent, all  
correspondence concerning your  
application will be sent to the agent's  
United Kingdom address.

3b If you have not appointed an agent please give a name and address in the  
United Kingdom to which all correspondence will be sent:

Name

Address

Postcode

ADP number  
(if known)

Daytime telephone  
number (if available)

**4 Reference number**

4 Agent's or applicant's reference number (if applicable)

**5 Claiming an earlier application date**

5 Are you claiming that this application be treated as having been filed on the date of filing of an earlier application?

Yes ☐ No ☒ **go to 6**

↓  
**please give details below**

☐ number of earlier application or patent number

☐ filing date

(day month year)

☐ and the Section of the Patents Act 1977 under which you are claiming:

15(4) (Divisional) ☐ 8(3) ☐ 12(6) ☐ 37(4) ☐

**6 Declaration of priority**

6 If you are declaring priority from previous application(s), please give:

Country of filing	Priority application number (if known)	Filing date (day, month, year)
-------------------	--	--------------------------------

**6** If you are declaring priority from a PCT Application please enter 'PCT' as the country and enter the country code (for example, GB) as part of the application number.

Please give the date in all number format, for example, 31/05/90 for 31 May 1990.

- ② The answer must be 'No' if:
- any applicant is not an inventor
  - there is an inventor who is not an applicant, or
  - any applicant is a corporate body.

③ Please supply duplicates of claim(s), abstract, description and drawing(s).

Please mark correct box(es)

- ④ You or your appointed agent (see Rule 90 of the Patents Rules 1990) must sign this request.

Please sign here →

A completed fee sheet should preferably accompany the fee.

## ⑦ Inventorship

7 Are you (the applicant or applicants) the sole inventor or the joint inventors?

Please mark correct box

Yes ☒

No ☐

→ A Statement of Inventorship on Patents Form 7/77 will need to be filed (see Rule 15).

## ⑧ Checklist

8a Please fill in the number of sheets for each of the following types of document contained in this application.

Continuation sheets for this Patents Form 1/77

NIL

Claim(s)

1

Description

1

Abstract

1

Drawing(s)

4 + 4

8b Which of the following documents also accompanies the application?

Priority documents (please state how many)

NIL

Translation(s) of Priority documents (please state how many)

NIL

Patents Form 7/77 – Statement of Inventorship and Right to Grant (please state how many)

NIL

Patents Form 9/77 – Preliminary Examination/Search

NIL

Patents Form 10/77 – Request for Substantive Examination

NIL

## ⑨ Request

I/We request the grant of a patent on the basis of this application.

Signed



Date

22. MAY 2003.

(day month year)

Please return the completed form, attachments and duplicates where requested, together with the prescribed fee to either:

☐ The Comptroller  
The Patent Office  
Cardiff Road  
Newport  
Gwent  
NP9 1RH

or

☐ The Comptroller  
The Patent Office  
25 Southampton Buildings  
London  
WC2A 1AY

### Background information.

For almost fifty years goods have been moved around the world in shipping containers. The dimensions of such containers have been established and controlled by The International Standards Organisation (I.S.O.) Likewise standards of locking and sealing the containers against illegal entry or insertion of contraband after the container has been closed by the shipper have long been established by Transport International Routiers (T.I.R.).

The doors of such containers have always been the most venerable area for illegal entry into the cargo space. Until recently it was assumed that the current practice of using two doors commonly of steel construction hingedly mounted to the vertical posts of the container at several positions, with the hinge pivot pins welded in position during construction so as to render them impossible to remove without significant mechanical damage which would be obvious at customs inspection.

To secure the doors in the locked position one or two locking bars on each door are typically welded or bolted, each locking bar is fitted with a cam at each end which engages with a keeper which is welded to the horizontal members at the top and bottom of the frame of the container. The locking bar is pivotally mounted and a handle is provided by means of which the cams can be rotated from the open to the locked position. In the locked position a handle latch is provided where the handle can be retained in position. Holes are provided in the latch and the handle which is in line when the door is locked which allows the insertion of a proprietary customs seal.

Again it has been assumed that container doors built and sealed in such a manner could not be opened without either breaking the seals or doing sufficient mechanical damage that the entry would be obvious on inspection.

It has also been accepted practice to fit only one customs seal in the handle of the bar nearest the centre of the container on the right hand door as this door is designed to overlap the left hand door and must be opened first.

Recently a major problem has arisen.

With the availability of high powered battery operated hacksaws and sophisticated adhesives commonly known as liquid metal, it has become relatively easy to cut through the cams of the customs sealed locking bar adjacent to the mounting brackets then open the doors by actuating the handles of the locking bars that have not been sealed, leaving the customs seal intact.

On closing the doors a small amount of liquid metal is applied to the saw cut, leaving the container apparently untouched unless a detailed inspection is carried out.

Claims.

1. A shipping container where one or more hinges and brackets are provided with a location which can receive a customs seal.
2. A shipping container as at 1 where the hinge/s are to distribute the racking forces into the container post at a point inboard from the pivot pin.

Abstract.

A description of the current invention with the aid of the following drawings follows.

Fig.1 Shows a typical I.S.O. shipping container end frame complete with doors (1),hinges (2),locking bars(3),cams and keepers(4),operating handle(5),and handle latch with customs seal provision(6).

Fig.2 Shows a typical section through a container door-post, door and hinge as used at present.

Fig.3 Shows the same section with the proposed hinge assembly and bracket with customs seal provision (7).

Fig.4 Shows a cross-section of the proposed hinge.

The current invention is intended for use on I.S.O. shipping containers and similarly constructed shipping and storage containers to provide increased security at minimal extra cost.

On a typical door frame and door assembly as shown in Figure 1. Where the right hand door has an overlap plate (8) or some other structure to ensure that one door cannot be opened until the primary door has been opened. When a hinge according to the proposed invention is fitted at for example position A generally to the configuration as shown in Fig.4. and provided with a standard customs seal hole 10, the said hole aligning with a similar hole in hinge bracket 11 when the door is in the fully closed position. A standard customs seal can be inserted through the bracket 11 and hinge 2 making it impossible to open the door without breaking the seal. Such damage would be obvious to any inspector. In the preferred embodiment the hinge would be extended inwards toward the doors to provide a shoulder 9 which would contact the door frame when the container is twisted (racked) during transportation. The limiting of such racking movement would eliminate the possibility of the seal being damaged during normal shipping and handling operations.



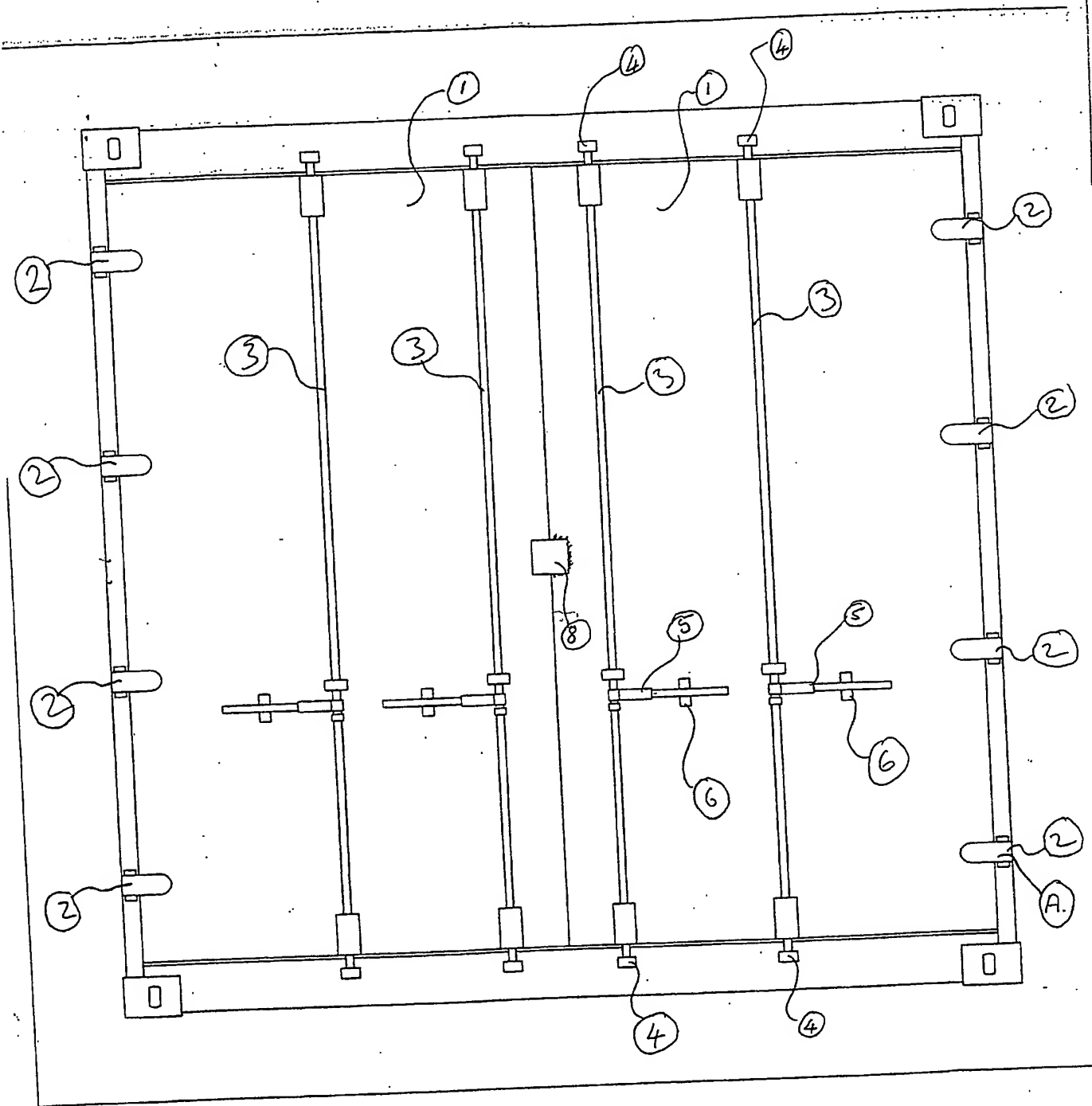


FIG. 1

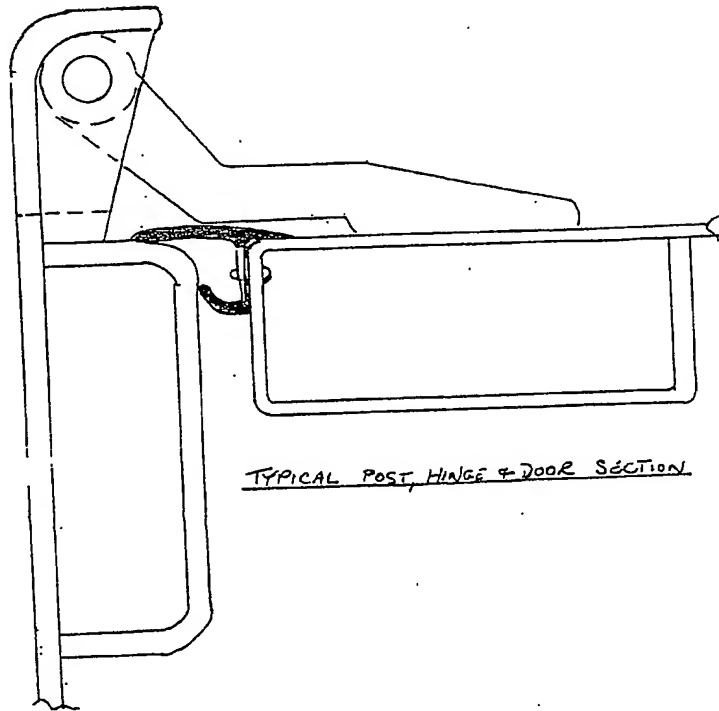
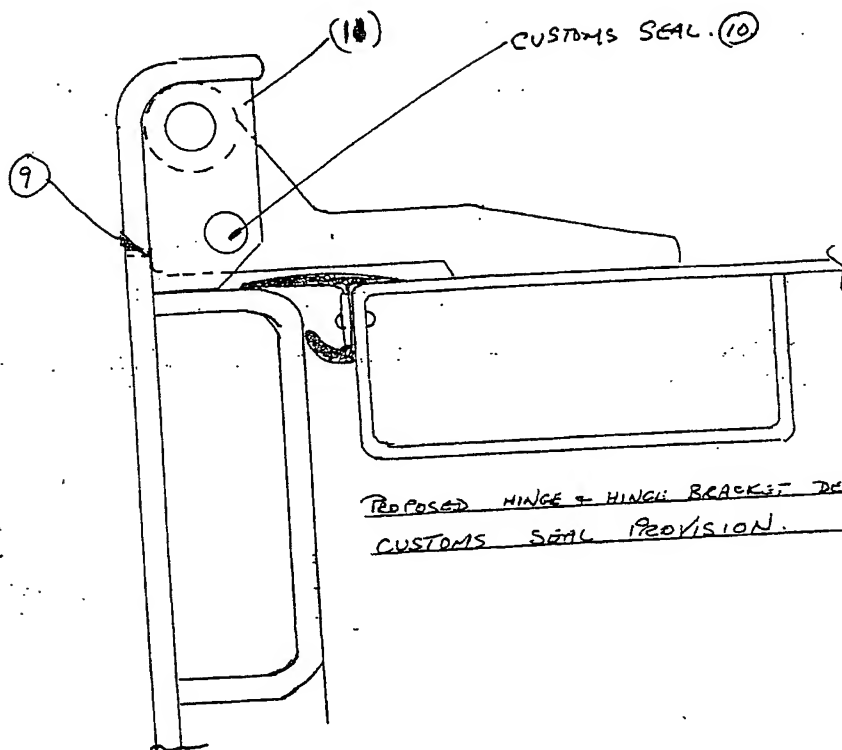
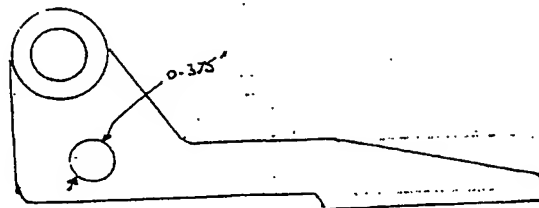


FIG 2.



PROPOSED HINGE & HINGE BRACKET DESIGN WITH  
CUSTOMS SEAL PROVISION.

FIG. 3



PROPOSED HINGE WITH 0.375" Ø SEAL HOLE TO BE FITTED  
LOWER R.H. POSITION.

FIG 4

PCT/GB2004/002220

1024445 DYNIS + LOMO

(23/7 files 17/6/04)

PCT/GB2004/002220



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